WHAT IS CLAIMED IS:

1. A substrate processing system comprising:

a processing chamber for holding a substrate during processing;

an alternating voltage supply connected with the processing chamber to capacitively couple energy to a plasma formed within the processing chamber; and

an impedance matching network coupled with the alternating voltage supply, the impedance matching network comprising:

a variable resistive element having a first plurality of states to define distinct real parts of an impedance in accordance with the first plurality of states; and

a variable reactive element having a second plurality of states to define distinct imaginary parts of the impedance in accordance with the second plurality of states.

2. The substrate processing system recited in claim 1 wherein the alternating voltage supply includes an intrinsic resistive matching load.

3. The substrate processing system recited in claim 2 wherein the variable resistive element comprises a transformer for transforming the intrinsic resistive matching load into one of the distinct real parts of the impedance in accordance with a state of the transformer.

4. The substrate processing system recited in claim 3 wherein the transformer comprises:

a first coil having a fixed number of turns coupled with the intrinsic resistive matching load; and

a secondary coil having a variable number of turns corresponding to the first plurality of states.

5. The substrate processing system recited in claim 4 wherein the first plurality of states consists of a finite number of discrete states, each such state being defined by a position of a switch to select a number of turns in the secondary coil.

6. The substrate processing system recited in claim 4 wherein the first plurality of states is a continuum of states.

7. The substrate processing system recited in claim 1 wherein the variable reactive element comprises a coil in series with the variable resistive element, the coil having a variable number of turns corresponding to the second plurality of states.

8. The substrate processing system recited in claim 7 wherein the coil comprises a plurality of inductive elements connected in series with the variable resistive element, the second plurality of states being defined by a state of a switch to select a subset of the plurality of inductive elements.

9. The substrate processing system recited in claim 1 wherein the second plurality of states consists of a finite number of discrete states.

10. The substrate processing system recited in claim 1 wherein the second plurality of states is a continuum of states.

11. The substrate processing system recited in claim 1 wherein the first plurality of states consists of a finite number of discrete states.

12. The substrate processing system recited in claim 1 wherein the first plurality of states is a continuum of states.

13. The substrate processing system recited in claim 1 wherein the alternating voltage supply comprises a radio-frequency voltage supply.

14. A method for processing a substrate, the method comprising:

positioning the substrate in a processing chamber;

capacitively coupling an alternating voltage supply with the processing chamber to couple energy to a plasma formed within the processing chamber; and

matching an impedance defined by processing conditions for the substrate, comprising:

matching a real part of the impedance by selecting one of a first plurality of states of a variable resistance element coupled with the alternating voltage supply; and

matching an imaginary part of the impedance by selecting one of a second plurality of states of a variable reactive element coupled with the alternating voltage supply.

15. The method recited in claim 14 wherein:

the alternating voltage supply includes an intrinsic resistive matching load; and

matching the real part of the impedance comprises transforming the intrinsic resistive matching load with a transformer in accordance with a state of the transformer.

16. The method recited in claim 15 wherein:

the transformer comprises a first coil having a fixed number of turns coupled with the resistive matching load and a second coil having a variable number of turns corresponding to the first plurality of states; and

matching the real part of the impedance comprises selecting the number of turns for the second coil.

17. The method recited in claim 16 wherein:

the first plurality of states consists of a finite number of discrete states, each such state being defined by a position of a switch to select a number of turns in the secondary coil; and

matching the real part of the impedance comprises positioning the switch.

18. The method recited in claim 16 wherein the first plurality of states is a continuum of states.

19. The method recited in claim 14 wherein:

the variable reactive element comprises a coil in series with the variable resistive element, the coil having a variable number of turns corresponding to the second plurality of states; and

matching the imaginary part of the impedance comprises selecting the number of turns for the coil.

20. The method recited in claim 19 wherein:

the coil comprises a plurality of inductive elements connected in series with the variable resistive element; and

selecting the number of coils comprises selecting a state of a switch to select a subset of the plurality of inductive elements.

21. The method recited in claim 14 wherein the alternating voltage supply comprises a radio-frequency voltage supply.